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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) ARC-15058-1	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on <u>25 June 2007</u> Signature <u><i>Vickie L. Kent</i></u> Typed or printed name <u>Vickie L. Kent</u>		Application Number 10/789,029	Filed 24 February 2004
First Named Inventor David L. Iverson		Art Unit 2129	
Examiner Wilbert L. Starks			

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
 Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
 See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
 (Form PTO/SB/96)

☒ attorney or agent of record. **26,994**
 Registration number

☐ attorney or agent acting under 37 CFR 1.34.
 Registration number if acting under 37 CFR 1.34

John F. Schipper
 Signature

John F. Schipper
 Typed or printed name

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 Telephone number

25 June 2007
 Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☐ Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.8. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: David L. Iverson

U.S. Serial No: 10/789,029

Filed On: 24 February 2004

Group Art Unit: 2129

Examiner: Wilbert L. Starks

Title: "INDUCTIVE MONITORING SYSTEM CONSTRUCTED FROM
NOMINAL SYSTEM DATA AND ITS USE IN REAL TIME SYSTEM
MONITORING"

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia. 22313-1450

PRE-APPEAL BRIEF UNDER APPEAL PILOT PROGRAM

Dear Sir:

In accord with the Pilot Program for Filing Pre-Appeal Briefs, announced by the U.S.P.T.O. in the Official Gazette Notices on or around 12 July 2005, the Applicant herewith submits a Pre-Appeal Brief focusing on two rejections, based on 35 U.S.C. §101, by the Examiner of all claims in the patent application identified above. The Examiner asserts, in the two most recent Office Actions, mailed 26 January 2007 and 12 April 2007, that the claims 1, 8, 11, 15, 31, 38-39, 41 and 45-49, as amended and presented in an Amendment And Response, filed on 22 March 2007, cover only non-statutory subject matter and declines to enter this Amendment And Response to the claims. The Applicant hereby requests that the claims submitted in this earlier-filed Amendment And Response be entered and considered by a panel of the Board of Appeals and Patent Interferences, to determine whether the rejections by the Examiner of the claims 1, 8, 11, 15, 31, 38-39, 41 and 45-49 under 35 U.S.C. §101 are proper or improper.

The Examiner rejects all claims under 35 U.S.C. §101 as not covering statutory subject matter. The Guidelines For Subject Matter Patentability, published by the U.S.P.T.O.

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on 22 November 2005 in the Official Gazette, incorporated by reference herein, discuss consideration of "Practical Application By Physical Transformation," at page 9 of 25, noting that, in order to qualify as covering statutory subject matter:

"the claimed invention 'transforms' an article or physical object to a different state or thing" or

"the claimed invention otherwise produces a useful, tangible and concrete result," based on the subsequent discussion of the factors "useful result," "tangible result," and "concrete result".

Amended claim 1 of the subject patent application recites a method of inductive learning, including the steps of providing a computer that is programmed:

"to provide or receive training data, including at least one of archived data, simulated nominal data and off-nominal data;"

"to provide vectors having a set of parameters determined from the training data;"

"to generate a cluster database comprising clusters that are associated with respective ranges of values for at least a subset of the set of parameters;"

"to index the clusters of the cluster database based on an indexing distance of each of the clusters from a predetermined indexing reference point;"

"to organize the clusters into a data structure of clusters based on the cluster indexing; and"

"to display a relationship between at least one of the vectors and the data structure in a visually perceptible format."

The computer: (i) receives the training data; (ii) provides vectors formed from sets of parameters determined from the training data; (iii) generates clusters associated with ranges of the parameters for at least a subset of the parameters; (iv) indexes the clusters based on a distance of each cluster from an indexing reference point; and (v) organizes the clusters into a data structure based on the indexing. The combination of these process steps receives training data having associated parameters, which data may be chaotic and/or unstructured, and converts or transforms these data into a data structure containing clusters that are indexed based on distance of a parameter set from an indexing reference point.

As recited in claim 1, the computer also displays the data structure in a visually perceptible format. The data structure is specific (based on a specific distance function),

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substantial (non-trivial, through application of the distance function to provide the clusters and to identify nominal versus off-nominal behavior in the monitored system, and through indexing of the clusters), and credible (the process can be implemented using a computer, as discussions of five examples on pages 43-54 in the patent application specification indicate). The method thus provides a "useful result" that is also "tangible" (the clusters of parameter sets and the data structure based on application of the distance function). The result is repeatable or reproducible and thus "concrete": beginning with the same training data and the same distance function, the same data structure should be reproduced. The claimed procedure, including display of the data structure, thus produces a "useful, concrete and tangible result."

Amended claim 1, which is implemented by a programmed computer, thus provides both a transformation of an article or physical object to a different state or thing (unorganized training data, converted to clusters and to a corresponding data structure) and "provides a useful, concrete and tangible result." Each of the two alternative requirements for U.S.P.T.O. subject matter eligibility is thus satisfied, although satisfaction of either one of these requirements appears to suffice for subject matter eligibility according to 35 U.S.C. §101. Amended apparatus claim 31 is parallel to amended method claim 1 and is believed to satisfy the requirements of Section 101 for the same reasons that amended claim 1 satisfies the requirements of Section 101.

Amended method claim 11 recites a method for monitoring a system, the method comprising providing a computer that is programmed:

"to provide or receive a cluster database comprising clusters that are associated with respective ranges of values for at least a subset of a set of cluster parameters;"

"to receive at least one monitored-system vector having monitored-system parameters, with parameter values generated by sensors that provide data measured on a monitored system;"

"to determine whether the at least one monitored-system vector is contained in any of the clusters based on at least a subset of the monitored-system parameters and the subset of the cluster parameters; and"

"when at least one of the monitored-system vectors is not contained in any cluster, to determine a deviation distance of the at least one monitored-system vector from a nearest

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cluster, to associate the determined deviation distance with a severity of a deviation of the at least one monitored-system vector from the nearest cluster, and to display in a visually perceptible format at least one deviation distance for the parameter values for the at least one monitored-system vector from the corresponding parameter values for the nearest cluster.”

The procedural steps recited in amended claim 11, performed by the programmed computer: (1) transform or convert an article or physical object (unstructured ranges of parameter values associated with an object) into a different state or thing (clusters of the objects in which a distance of an object from a nearest cluster is no greater than a selected deviation); and (2) provide a useful, concrete and tangible result (visually perceptible display of the respective ranges of parameter value sets associated with one or more of the clusters). The Applicant believes that amended method claim 11, and the corresponding amended apparatus claim 41, also satisfy the subject matter eligibility requirements set forth in the OG Notice, 22 November 2005.

After the transformation, the data within a given cluster are related to each other, through relationships of the parameters and/or adjacent or overlapping ranges of the parameter values. These parameter values represent an operating state of the system that provided the data. In effect, the programmed computer creates and displays order and structure where the data were originally chaotic and unstructured.

The Examiner relies upon the decision in In re Warmerdam, 33 F.3d 1354, 31 U.S.P.Q.2d 1754 (C.A.F.C. 11 August 1994) for his assertion that “taking several abstract ideas and manipulating them together adds nothing to the basic equation.” In re Warmerdam involved U.S. Serial No. 07/430,749, entitled “Method and apparatus for controlling robots and the like using a bubble data hierarchy placed along a medial axis,” which was subsequently issued as U.S. Patent No. 6,089,742 (18 July 2000). The original method claims 1, and claims 2-4 dependent thereon, were drawn to a method for generating a data structure representing a shape and location of a physical object, the method comprising (i) first locating the medial axis of the object and (ii) then creating a hierarchy of (mathematically defined) bubbles on the medial axis. Claims 1-4, as issued, appear to have been redrawn as apparatus claims in the ‘742 patent, as issued, with substantially the same claim elements, restated as apparatus components. Claim 5 of the issued ‘742 patent is drawn

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to a robotic controller apparatus and was apparently approved as not indefinite in the Federal Circuit decision.

The Warmerdam et al '742 patent claims, as issued, do not recite that the corresponding manipulations are performed by a computer and do not recite a visual display or analogous presentation that would serve to produce a "useful, tangible and concrete result." The In re Warmerdam decision, and the '742 patent that issued thereon, appears to approve apparatus claims that do not recite transformation of an object to a different physical state or thing and that do not explicitly recite production of a useful, tangible and concrete result.

The Applicant, in method claims 1 and 11 and in parallel apparatus claims 31 and 41, goes further and recites transformation of an object to a different physical state or thing (use of a programmed computer to analyze and organize data parameters into clusters and the clusters into indices, and construction of a data structure, based on the indexing) and production of a useful, tangible and concrete result (visual display of at least one relationship between two or more clusters in the data structure). The Applicant believes that method claims 1 and 11 and, independently, apparatus claims 31 and 41, recite inventions that qualify as statutory subject matter under Section 101.

Independent method claims 1 and 11 and apparatus claims 31 and 41 all explicitly recite that (1) the data manipulations to construct a desired data structure from parameter vectors are performed by a programmed computer and (2) a relationship between at least one parameter vector and the data structure are visually displayed.

The Applicant believes that method claims 1 and 11 and apparatus claims 31 and 41, as amended, independently recite statutory subject matter under 35 U.S.C. §101 and that the Examiner should withdraw the rejection of these claims, and claims dependent thereon, under Section 101.

Date: 25 June 2007


John Schipper

Patent representative for Applicant